

On the cross-linguistic word order in noun phrases: Evidence from Japanese and Mandarin

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Abstract. This article critically evaluates Cinque’s (2005) “role-up” operation by comparing possible word orders in Japanese and Mandarin noun phrases. The analysis finds differences in the distribution and semantics of Mandarin and Japanese adjectives and relative clauses (RCs) that challenge Cinque’s famous account of cross-linguistic variation in noun phrase word order.

1. Introduction

Cinque (2005) derives the cross-linguistic word ordering within noun phrases through a universal order of merge and language specific movement operations. Cinque describes this movement as a “roll-up” and argues that it is motivated by a nominal feature that drives movement of a nominal up through the nominal projection. The roll-up is successful at deriving the attested word orders of Greenberg (1963) and excluding unattested word orders. One issue that Cinque notes, however, relates to the relative ordering of adjective and number. Cinque observes that several languages (Korean, Mongolian, and Quechua) exhibit the word order $\text{Dem} < \text{Adj} < \text{Num} < \text{N}$, which cannot be derived via the proposed roll-up. Cinque proposes that, as these languages are verb final and have prenominal RCs, the pre-*numeral* adjectives in these languages may actually be reduced relative clauses (RRCs). Cinque, thus, proposes the following word ordering for these languages:

1. $\text{Dem} < \text{Adj from RRC} < \text{Num} < \text{Adj} < \text{N}$.

Example (1) above shows two possible sources of adjectives within the noun phrase, both above and below Num. Cinque (2005) suggests that a similar analysis may be extendable to Mandarin, which is reported to have pre-demonstrative adjectives. The pre-demonstrative adjective is also not derivable through the roll-up operation, and Cinque suggests that this word order may also be derivable if the adjectives that precede demonstratives are RRCs. The current study investigates the internal structure of

elements within noun phrases in Japanese and Mandarin. Japanese, like Korean, Mongolian, and Quechua, is verb final and has prenominal adjectives and prenominal RCs. Mandarin adjectives and RCs are also similar morphosyntactically. The analysis herein will attempt to determine whether the RRC analysis proposed by Cinque is a tenable explanation for the apparently deviant distribution of adjectives in Mandarin and Japanese.

2. Relative Clauses in Mandarin and Japanese

In both Mandarin and Japanese, RCs precede the noun that they modify. In Mandarin, the morpheme *DE* always directly precedes the modified head noun (Example 2). Hereinafter, *DE* will be analyzed as the complementizer for Mandarin RCs. In Japanese, however, the bare (3) or tensed form (4) of verbs in RCs directly precede the head noun modified by the RC. This contrast is shown by the minimal pairs in examples below.

Mandarin:

2. tamen zhong de shuiguo
they grow *DE* fruit
'the fruit that they grow'

Japanese:

3. karera-ga sodatsu kudamono
they-NOM grow fruit
'the fruit that they grow'
4. karera-ga sodatta kudamono
they-NOM grow.PAST fruit
'the fruit that they grew'

3. Prenominal Adjectives in Mandarin

Adjectival modification in Mandarin is strikingly similar, both morphologically and syntactically, to RC modification in Mandarin. Examples (5) and (6) illustrate two types of adjectival modification in Mandarin.

5. hong hua
‘a red flower’
6. hong de hua
red *DE* flower
‘a flower that is red’

In example (5) above, the adjective hong ‘red’ directly precedes the noun that it modifies. In example (6) *DE* intervenes between the adjective and modified noun. When *DE* intervenes between an adjective and head noun, a RC reading is observed.

Li and Thompson (1981) note a semantic difference between adjectives that directly precede the nouns that they modify and adjectives + *DE* construction that can modify nouns. When adjectives directly precede a noun in Mandarin, there is often a “naming effect” (Li & Thompson, 1981, p. 119). When *DE* intervenes, however, the adjective describes a non-defining property of that noun.

7. hutu jiaoshou
muddleheaded professor
‘professor muddleheaded’
8. hutu de jiaoshou
muddleheaded *DE* professor
‘a professor who is muddleheaded.’

Example (7) above shows the naming effect that is observed when an adjective directly precedes the noun that it modifies. Example (8) shows that when *DE* intervenes between the adjective and noun a RC like reading is observed.

4. Prenominal Adjectives in Japanese

Adjectival modification of nominals in Japanese is also morphosyntactically similar to relative clause modification in Japanese.

9. akai hana
 red flower
 ‘red flower’

As example (9) above shows, adjectives directly precede the nouns that they modify without any material intervening. A further similarity between RCs and adjectives in Japanese is that adjectives in Japanese can bear tense.

10. akakatta hana
 red.PAST flower
 ‘a flower that was red’

Thus, to review, Mandarin RCs require an overt complementizer DE, while Japanese RCs disallow any sort of complementizer. In regard to adjectival modification, Mandarin has two types: one where DE intervenes between the adjective and noun, and one where the adjective directly precedes the modified noun. As for Japanese, no element appears between an adjective and the modified noun, and this is also the case for RC modification in Japanese. A further aspect that may support an analysis for some Japanese adjectives being RRCs is that Japanese adjectives can bear tense. In the following sections I investigate whether the noun modifying adjective +DE construction can be analyzed as a RRC. I will also examine whether Japanese has two forms of adjectival modification, as suggested by Cinque.

5. Idioms

Cinque (2005) argues that RRCs cannot form idioms with the nouns that they modify, as direct modification adjectives do. Indeed, idiomatic readings are only possible when adjectives directly precede a target noun in Mandarin.

11.
 - a. huang dou
 yellow bean
 ‘soybean’
 - b. huang de dou
 yellow *DE* dou
 ‘a bean that is yellow’

12.
 - a. xiang yan
 fragrant smoke
 ‘cigarette’
 - b. xiang de yan
 fragrant *DE* smoke
 ‘smoke that is fragrant’

The examples in (11) and (12) (Li and Thompson, 1981, p. 120) show that idiomatic readings are disallowed in the adjective + DE construction. A similar pattern is observed in Japanese when adjectives bear tense.

13.
 - a. samui jodan
 cold joke
 ‘an unfunny joke’

- b. #samu-katta jodan
cold.PAST joke
'a joke that was cold'

14.

- a. oishii hanashi
delicious story
'an intriguing story'
- b. #oishi-katta hanashi
delicious.PAST story
'a story that was delicious'

Examples (13a) and (14a) show idiomatic readings of pre-nominal adjectives.

Examples (13b) and (14b) show that tensed adjectives only have a literal reading.

The examples above provide some preliminary evidence for analyzing adjectives in Mandarin and Japanese as RRCs in certain contexts. Particularly interesting is that the presence of a tense morpheme on Japanese adjectives appears to indicate a RRC.

6. Modifier stacking

Cinque (2004) illustrates that there is a strong cross-linguistic tendency related to the ordering of adjective stacking for attributive adjectives: $Adj_{\text{quantification}} > Adj_{\text{quality}} > Adj_{\text{size}} > Adj_{\text{shape}} > Adj_{\text{color}} > Adj_{\text{nationality}}$. In Mandarin, bare form adjectives also require that adjectives of size precede adjectives of color (15a – 15b).

15.

- a. da hong fangzi
big red house

‘big red house’

- b. *hong da fangzi
red big house
‘big red house’

In the adjective + *DE* construction, however, this ordering need not be followed.

- 16.
hong de da de fangzi
red *DE* big *DE* house
‘house that is red (and) that is big’

This aligns with an analysis of the adjective + *DE* construction as a RRC.

In Japanese, however, the issue is less clear.

- 17.
 - a. ookii akai ie
big red house
 - b. akai ookii ie
red big house

Examples (17a) and (17b) show that Japanese adjectives are not restricted to this order. Further, the free stacking order of adjectives in Japanese is not affected by the presence of tense (17a and 17b).

- 18.
 - a. akai ookikatta ie
red big.PAST house
‘red house that was big’

- b. akakatta ookii ie
 ‘big house that was red’

The free ordering of attributive adjectives in Japanese can be explained if (17b) and (18b) involve a RRC containing only the adjective *akai* ‘red’ and a null tense morpheme. If this is the case, we may assume that tensed adjectives in Japanese are always RRC, but adjectives that do not bear tense can be either attributive adjectives or RRCs with null tense morphemes.

7. Noun Phrase internal word order

The paradigm below shows the possible word orderings of elements in noun phrases in Japanese.

Japanese

19.

- | | | | | |
|----|----------------|-------------|----------------|-------|
| a. | kono Jon-ga | tsukutta | oishii | pizza |
| | this John-NOM | make.PAST | delicious | pizza |
| b. | kono oishii | jon-ga | tsukutta | pizza |
| | this delicious | John-NOM | make.PAST | pizza |
| c. | jon-ga | tsukutta | kono oishii | pizza |
| | John-NOM | make.PAST | this delicious | pizza |
| d. | *oishii | kono jon-ga | tsukutta | pizza |
| | delicious this | John-NOM | make.PAST | pizza |

‘this delicious pizza John made’

The examples in (19) show that Japanese allows for the order Dem < RC < Adj < N (Example 19a), Dem < Adj < RC < N (Example 19b), and RC < Dem < Adj < N (Example 19c). however, the adjective *oishii* ‘delicious’ cannot precede the

demonstrative *kono*. This is unexpected if the adjective *oishii* ‘delicious’ can function as a RRC.

Mandarin has a much stricter word order within the NP than Japanese.

According to the native speaker consulted, only the order DEM < Adj + DE < RC < N was viable (Example 20b).

Mandarin

20.

- a. *zhe ge John zuo de haochi bisabing
this CL John make.PAST DE delicious pizza
- b. zhe ge haochi de John zuo de bisabing
this CL delicious DE John make.PAST DE pizza
- c. *John zuo de zhe ge haochi bisabing
John make.PAST DE this CL delicious pizza
- d. ? haochi de zhe ge John zuo de bisabing
delicious DE this CL John make.PAST DE pizza

Interestingly, the native Mandarin speaker judged (20d) as only marginally acceptable. Cinque (2005) argues that the pre-demonstrative adjective can be accounted for if the adjective is a RRC; however, the marginal acceptance of (20d) brings into question necessity for such an analysis for Mandarin.

Although some evidence has been found in support of a RRC analysis of Mandarin and Japanese adjectives, both languages have a different distribution of adjectives and RCs in relation to the demonstrative: In Japanese, RCs - but not adjectives - can precede demonstratives, while the inverse is true of Mandarin. It is not clear why this should be if adjectives in these languages can be RRCs.

8. Intersective and non-intersective Adjectives

Cinque (2005) notes that non-intersective readings are only possible with direct modification adjectives. Nishiyama (1999) observes that, while less prominent, non-intersective readings are possible in Japanese.

21.

- a. kanojo-wa utsukushii dansaa
 she-TOP beautiful dancer
 ‘she is a dancer and she is beautiful’ (**intersective reading**)
 ?‘she is a dancer and her dancing is beautiful’ (**non-intersective reading**)
- b. san-nin-no utsukushii dansaa
 3-CL-GEN beautiful dancer
 ‘three attractive dancers’
 ‘three dancers who dance beautifully’

Example (21a) is ambiguous between an intersective reading and a non-intersective reading. Example (21b) shows that the phrase is still ambiguous when a numerical classifier precedes *utsukushii*.

22. utsukushii san-nin-no dansaa
 beautiful 3-CL-GEN dancer
 ‘three attractive dancers’

When the numerical classifier is closer to the noun than the adjective, however, (as in example 22) only the intersective reading is available. This aligns with Cinque’s (2005) claim that the ordering Dem > Adj > Num > N can be explained if the Adj above Num is actually a RRC. This suggests an internal structure of Dem < Adj from RRC < Num < Adj < N for Japanese.

In regard to Mandarin, however, the exact opposite pattern we would predict (if the Adj + *De* construction is taken to be an example of a RRC) is observed. Paul (2010) shows that non-intersective adjectives are only grammatical in Mandarin when they are marked with *DE*.

23. yiqian *(de) xiaoshang
 former DE school.president
 ‘the former school president’

Assuming that Cinque’s (2005) argument that only direct modification adjectives can give non-intersective readings is correct, example (23) forces us to reanalyze the adjective + *DE* construction. As we have already found some support for the adjective + *DE* construction as a RRC, we may wish to argue that *DE* indicates that an adjective is in an RRC, but in other instances the adjective + *DE* construction may still be a direct modification adjective. Another option would be to reject Cinque’s (2005) claim that only direct modification adjectives yield non-intersective readings.

An argument can also be made that the Japanese data supports rejecting Cinque’s assertion that only direct modification adjectives can give rise to non-intersective readings, as non-intersective readings of attributive adjectives in Japanese (example 21) are only marginally acceptable. Further, Namai (2002) reports that to the extent that (20a) yields a non-intersective reading, the same reading is also possible when the adjective bears tense (24).

24.

 kanojo-wa utsukushikatta dansa
 she-TOPIC beautiful.PAST dancer
 ‘she was a dancer and she is beautiful’ (**intersective reading**)

?‘she was a dancer and her dancing is beautiful’ (**non-intersective reading**)

As noted above, there is some good reason to analyze prenominal tensed adjectives as RRCs, notably, tensed adjectives block normally available idiomatic readings of prenominal adjectives. The stacking order of adjectives can also be partially explained by an analysis that assumes some forms of adjectives are RRCs. Thus, if Namai’s (2002) judgment is correct, this further calls into question Cinque’s (2005) claim that only direct modification adjectives give rise to non-intersective readings.

9. Discussion and Conclusion

The current paper found some support for Cinque’s (2005) proposal that the divergent word order of adjectives in noun phrases, as predicted by his “roll-up” operation, can be accounted for if these adjectives are analyzed as RRCs. The investigation also revealed two surprising finds: notably, Mandarin and Japanese diverge as to whether they allow adjectives or RCs before demonstratives. The fact that both of these languages allow only adjectives or RCs, but not both, to precede demonstratives, brings into question whether or not adjectives can be analyzed as RRCs, as it is not clear why only one or the other should be allowed if adjectives can function as RRCs. A further challenge to the RRC analysis is that non-intersective adjectives in Mandarin require *DE*. To further the current analysis, Cinque’s (2005) claim that only direct modification adjectives can give rise to a non-intersective reading needs to be further evaluated, as this makes the exact opposite prediction for Mandarin.

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